Claims

1. Load bearing device (23), in particular for the loading and unloading of loading means (10) into or out of a rack compartment (9) of a rack store (2, 3) with an adjustable lifting platform (22) laterally adjacent to the rack store (2, 3), with a bearing device (24) mounted on the lifting platform (22) for bearing, if necessary, at least one loading means (10), which bearing means comprises a base frame (25) and at least one sliding drive (62) and coupling and upper slides (29, 30) adjustable in travelling in and out direction (27, 28) synchronously and relative to the base frame (25), and at least one conveying means (32) mounted on the upper slide (30), in particular a conveyor belt, for transporting the loading means (10) by means of frictional locking, which conveying means (32) is coupled with a conveying means drive (52) comprising two pulley drives, of which a first pulley means (75) is guided by a first pulley means drive running from a driving gear (77) mounted on the base frame (25) and driveable by a conveyor motor (31) over two guide rollers (78) mounted on the base frame (25) at its two sides and two guide rollers (79) mounted at the ends of the coupling slide (29), and a second pulley means (76) of the second pulley means is guided on two guide rollers (50) mounted on the upper slide (30) and is coupled moveably with the coupling slide (29), and the base frame (25), coupling and upper slide (29, 30) are designed respectively to have approximately the same length and are guided towards one another, and a maximum advance length (63) of the moved out upper slide (30) between end sides of the base frame (25) and upper slide (30) that are at the front in travelling out direction (28) is smaller than the length of the base frame (25) and is delimited by a overlapping areas (64) resulting from the guiding of the pulley means (75, 76) on the guide rollers (50, 79) between opposite end sides (65, 66) of the base frame (25) and upper slide (30), **characterised in that** by means of the upper slide (29, 30) viewed in travelling out direction (28), at least two depth positions lying behind one another for the loading means (10) can be approached in the rack compartment (9) of the rack store (2, 3), and in that the conveying means and sliding drive (52, 62) has motors (31, 26) that can be driven separately and are secured onto the lifting platform (22), and the second pulley means (76) is guided by the second pulling means drive for the conveying means drive (52) around a first guide roller (50) mounted on the upper slide (30) and driven by the first pulley means (75) and a second guide roller (50) mounted at one end of the upper slide (30), and the conveying means (32) can be driven by means of the second pulley means (76) and the

second guide roller (50), and in that the sliding drive (62) comprises at least one pulley means drive coupled with the sliding motor (26) and arranged separately from the pulley means drives for the conveying means drive (52), and in that between the bearing device (24), in particular the base frame (25) and the lifting platform (22) at least one actuating drive (67) and a linear guiding device (68) running parallel to the travelling in and out direction (27, 28) is arranged, and in that the bearing device (24) is guided along the linear guiding device (68) and is adjustable by the actuating drive (67) in travelling in and out direction (27, 28) by about the length of the overlapping area (64), such that the conveying means (32) can be moved out up to at least one rear end face (109) viewed in travel out direction (28) of a loading means (10) positioned in the rack compartment (9), and in this way the loading means (10) completely drives down in travelling in and out direction (27, 28) on its underside.

2. Load bearing device according to claim 1, characterised in that the actuating drive (67) is designed separately from the sliding drive (62) and comprises a pneumatically, hydraulically or electrically operated linear drive.

3. Load bearing device according to claim 2, characterised in that the linear drive comprises the linear guiding device (68).

4. Load bearing device according to claim 2, characterised in that the linear drive comprises an actuating motor (99) and in that the sliding, conveying and/or actuating motor (26, 31, 99) are synchronised by the sliding drive , the conveying means drive and/or actuating drive (62, 52, 67).

5. Load bearing device according to claim 1, characterised in that the actuating drive (67) is formed by the sliding drive (62).

6. Load bearing device according to claim 5, characterised in that the sliding drive (62) comprises a first driving gear (88) mounted on the base frame (25) and coupled with the sliding motor (26) fixed onto the lifting platform (22) and a first transmission means arranged between the base frame (25) and the lifting platform (22) and engaging or contacting with the first driving gear (88).

7. Load bearing device according to claim 6, characterised in that the first driving gear (88) is formed by a toothed wheel or a toothed disc and the first transmission means is formed by a gear rack (103) secured onto the lifting platform (22) parallel to the driving in or out direction (27, 28), or a linearly tensioned chain or a toothed belt.

8. Load bearing device according to claim 6, characterised in that the first driving gear (88) is formed by a frictional wheel and the first transmission means by a frictional surface arranged on the lifting platform (22) parallel to the travelling in or out direction (27, 28).

9. Load bearing device according to claim 6, characterised in that the first transmission means is formed by a first pulley means (87), that is guided by the first driving gear (88) over two guide rollers (89) secured onto the base frame (25), and the two ends (85) of the first pulley means (87) are connected securely at securing points (93) to the lifting platform (22).

10. Load bearing device according to claim 1, 5 or 6, characterised in that the sliding drive (62) comprises a second driving gear (91) mounted on the base frame (25) and coupled with the same sliding motor (26), and a second transmission means arranged between the base frame (25) and the coupling slide (29) and engaging or contacting with the second driving gear (91).

11. Load bearing device according to claim 10, characterised in that the second driving gear (91) is formed by a toothed wheel or a toothed disc and the second transmission means is formed by a gear rack (104) secured onto the coupling slide (29) parallel to the travelling in or out direction (27, 28) or a linearly tensioned chain or a toothed belt.

12. Load bearing device according to claim 10, characterised in that the second driving gear (91) is formed by a frictional wheel and the second transmission means is formed by a frictional surface arranged on the coupling slide (29) parallel to the travelling in or out direction (27, 28).

13. Load bearing device according to claim 10, characterised in that the second transmission means is formed by a second pulley means (90), which is guided by the second

driving gear (91) over two guide rollers (92) arranged centrally on the base frame (25) to securing points (93) arranged in travelling out direction (28) of the telescopic support device (24) at the ends of the coupling side (29), and the two ends (86) of the second pulley means (90) are securely connected to the coupling slide (29).

14. Load bearing device according to claim 5, characterised in that the sliding drive (62) comprises a third pulley means (94), which is guided running endlessly around two guide rollers (95) mounted in travel out direction (28) of the telescopic bearing device (24) at the ends of the coupling slide (29), and the coupling slide (29) is connected via a first work drive element (96) to the base frame (25) and the upper slide (30) via an additional work drive element (97) to the coupling slide (29) in a moving mechanical manner, whereby the first work drive element (96) is secured to a lower strand side of the third pulley means (94) facing the base frame (25) and a frame of the base frame (25), and the additional work drive element (97) is secured to a upper strand side facing the upper slide and a frame of the upper slide (30).

15. Load bearing device according to one of claims 6 to 13, characterised in that the driving gears (88, 91) form a transmission and are arranged on a common drive shaft, and in that drive shaft is coupled via a rotational movement transmission member (84), in particular a cardan shaft, with the sliding motor (26) arranged in a fixed manner on the lifting platform (22).

16. Load bearing device according to claim 1, characterised in that the base frame (25) of the bearing device (24) is arranged on the lifting platform (22), and in relation to the lifting platform (22) is designed to be adjustable in two directions beyond the opposite side delimitations (72) of the lifting platform (22) by about the length of the overlapping area (64).

17. Load bearing device according to claim 1 or 16, characterised in that an adjustment path (73) of the base frame (25) parallel to the travelling in or out direction (27, 28) corresponds at least to the length of the overlapping area (64) and is between about 130 mm and 250 mm, in particular 150 mm and 200 mm, for example 170 mm.

18. Load bearing device according to claim 1, characterised in that the linear guiding device (68) comprises at least one guiding bar (69) running in travelling in or out direction (27, 28) and secured onto the lifting platform (22) and at least one slide (70) secured to the base frame (25), whereby the bearing device (24) is mounted by the slide (70) on the guiding bar (69).

19. Method, in particular for the loading and unloading of loading means (10) into or out of a rack compartment (9) of a rack store (2, 3), by means of a bearing device (24) with a base frame (25) and coupling and upper slides (29, 30) that are adjustable synchronously to one another and relative to the base frame (25) in travelling in and out direction (27, 28), and at least one driveable conveying means (32) arranged on the upper slide (30) and a load bearing device (23) arranged on an adjustable lifting platform (22) according to one of claims 1 to 18, in which for unloading the upper slide (29, 30) with the running conveying means (32) driven over pulleys (75, 76) of the bearing device (24) positioned in front of the rack compartment (9) drives out under at least one loading means (10) placed on a storage surface (35) in the rack compartment (9) in direction (28) until it reaches a maximum of an advance length (63) defined by an overlapping area (64) resulting from the guiding of the pulleys (75, 76) on guide rollers (50, 79) between opposite end sides (65, 66) of the base frame (25) and upper slide (3), the conveying means (32) takes up the loading means (10), and then the upper slide (29, 30) returns in travelling in direction (27), and in which for loading the upper slide (29, 30) of the bearing device (24) with the loading means (10) placed on the conveying means (32) drives out in travelling out direction (28) at most up to the extension length (63) delimited by the overlapping area (64) between opposite end sides (65, 66) of the base frame (25) and upper slide (30) resulting from the guiding of the pulley means (75, 76) on guide rollers (50, 79), the conveying means (32) transfers the loading means (10) onto the storage surface (35) on the shelf compartment (9) and then the upper slide (29, 30) returns in driving in direction (27), **characterised in that** on unloading and loading a loading means (10) by the upper slide (3) viewed in travelling out direction (28), a front or rear depth position is approached and by the running conveying means (32) a loading means (10) placed on the front or rear depth position is taken onto the upper slide (30) or a loading means (10) is placed by the upper slide (30) on the shelf compartment (9) in the front or rear depth position, whereby the in and out movement of the upper slide (30) and feed movement of at least one conveying means (32) are driven separately by two mo-

tors (31, 26) arranged on the lifting platform (22), and in that the bearing device (24), in particular the base frame (25), is moved in addition to the driving in and out movement of the upper slide (30) relative to the lifting platform (22) in travelling in or out direction (27, 28) by about the length of the overlapping area (64) such that the conveying means (32) drives out up to at least one rear end face (109) viewed in travelling out direction (28) of a loading means (10) placed in the shelf compartment (9) and thereby drives underneath the loading means (10) in travelling in or out direction (27, 28) on its underside.

20. Conveyor device (11), in particular a rack operating device, with an essentially vertically and horizontally adjustable lifting platform (22) and at least one load bearing device (23) arranged on the lifting platform (22), characterised in that the at least one load bearing device (23) is designed according to one of Claims 1 to 18.